

**REMARKS**

Claims 1 and 3 have been amended. Claims 2 and 4 have been cancelled. Claims 7-9 have been added. Claims 1, 3, 5-9 are all the claims pending in the application.

***Formal Matters***

Applicant thanks the Examiner for accepting the drawings filed on September 24, 2003 and for acknowledging claim to priority under 35 U.S.C. § 119 and receipt of the certified copy of the priority document. Applicant also thanks the Examiner for reviewing and initialing the information disclosure statement filed September 24, 2003.

***Claim amendment and new claims***

Applicant has amended claim 3 to clarify a redundancy in wording, and not for any reason related to patentability. Therefore, Applicant respectfully requests that the amendment be entered into the record. Applicant has added new dependent claim 7-9 to more fully claim the invention.

***Claim rejections – 35 U.S.C. § 112, second paragraph***

Claims 2 and 3 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. The Examiner contends that the limitation that the light receiving portions are arranged in a direction perpendicular to the main scanning direction over a distance of twice or five times the width of the stimulating beam renders claims 2 and 3 indefinite. Specifically, the Examiner asserts that because the width of the beam is variable or undefined, one skilled in the art would be unaware of the subsequent width of the line sensor. Applicant respectfully disagrees.

While it is true that a claim may be rendered indefinite by reference to an object that is variable, such is not always the case. The relevant factors in making an indefiniteness determination are 1) whether a standard is provided for measuring the degree intended and 2) whether one skilled in the art would know and understand what is claimed. *See* MPEP § 2173.05(b). Applicant directs the Examiner to page 6 of the specification, where the width of the stimulating light beam is defined. Applicant submits that there are physical limits to the width of the beam beyond which the invention would be inoperable. One skilled in the art would recognize these limits and would understand from the specification the reason behind the limitation that the light receiving portions be arranged over a distance twice or five times the width of the beam. Therefore, Applicant respectfully requests the Examiner to withdraw the rejection.

***Claim rejections – 35 U.S.C. § 102***

Claims 1 and 4 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent App. Publ. No. 2002/0040973 to Arakawa. Applicant has amended claim 1 to incorporate the subject matter from dependent claims 2 and 4, and has subsequently cancelled claims 2 and 4.

The Examiner asserts that Arakawa discloses all of the limitations of independent claim 1. Applicant respectfully traverses the rejection. The present invention outputs electric charges obtained by photoelectric charges after binning the electric charges in a direction perpendicular to the main scanning direction. Though Arakawa refers to binning, *e.g.* at paragraphs 0151-

0154, Applicant submits that the reading circuit 21 may perform binning which is after the output of charges from the conversion devices. This is the opposite sequence as described in claim 1. Applicant further notes that such possible operation would result in noise reduction similar to known devices. Therefore, Arakawa does not explicitly teach all features of claim 1, and Applicant respectfully requests the Examiner to withdraw the rejection.

***Claim rejections – 35 U.S.C. § 103***

Claims 2 and 3 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Arakawa in view of U.S. Patent App. Publ. No. 2001/0052582 to Isoda (Isoda 1).

Applicant has cancelled claim 2. Claim 3 now depends from amended claim 1, which has been shown above to be patentable over the Arakawa reference. Isoda I does not cure the deficiency of Arakawa because Isoda I contains no teachings relevant to binning charges. Therefore, claim 3 is patentable over the Arakawa and Isoda I reference, and Applicant respectfully requests the Examiner to withdraw the rejection.

Claims 5 and 6 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Arakawa in view of U.S. Patent App. Publ. No. 2002/0100885 to Isoda (Isoda 2). Applicant respectfully traverses the rejection.

Claim 5 requires that the micro lens array extend in a direction perpendicular to the main scanning direction. The Examiner asserts that it would have been an obvious design choice to provide the lens over an area including the light receiving portions, i.e. perpendicular to the main

scanning direction. However, Arakawa, at paragraph 0123, only discusses the distributed lens array 15 in relation to the line sensor 17 in the first embodiment, *i.e.* with only a single line of sensors arranged in a row parallel to the main scanning direction (*see, e.g.*, Fig. 4). The distributed index lenses 15a-d stand side by side along the direction indicated by the double headed arrow X in Fig. 1. In other words, Arakawa only shows one row of distributed index lenses. Arakawa thus does not show that the distributed index lenses extend in the direction perpendicular to the main scanning direction.

Moreover, it would not have been obvious to so extend the lenses. Isoda 2 teaches, at Fig. 2, that the distribution of the intensity of emitted light exhibits a bell-curve shaped pattern. In other words, the intensity of the emitted light is strongest at the center, and decreases rapidly with the distance from the center. Thus, to increase the intensity of the light, it only makes sense to provide a single row of lenses at the center. With respect to claim 6, claim 6 requires that the micro lens arrays be extended even further to cover the charge transfer portions of the CCD.

Therefore, neither Arakawa nor Isoda 2, nor their combination, teach or suggest providing micro lens arrays extending in a direction perpendicular to the main scanning direction, as required by claim 5 and claim 6, and Applicant respectfully requests the Examiner to withdraw the rejection.

### ***Conclusion***

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

*Amendment Under 37 C.F.R. § 1.111*  
*USAN 10/668,224*

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Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


Respectfully submitted,

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